A Survey of Collaborative Internet Technologies

Produced for IDRC Program Staff by the Unganisha Project
June 1998
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This report was originally produced as a web-based document. The Internet version can be found at http://www.idrc.ca/unganisha/document/collab/. It may be updated periodically.

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1. Introduction

One of the goals of Unganisha is to improve the efficiency and effectiveness of program groups to deliver research programs, products, and services through active networking. Effective and strategic use of the Internet for networking involves the dissemination and the retrieval of information. For dissemination, appropriate communication formats and techniques must be chosen and, for retrieval, information must be gathered efficiently.

Some of the factors to be considered in the effective and strategic use of Internet-based information and communication systems:

1. The Internet consists of a variety of information and communication component; e.g., email, text documents, databases, discussion groups, news groups, real time chat, video and audio conferencing, push technologies, and search engines.
2. Users interact with the Internet in a variety of ways; e.g., email only, slow connections or fast connections.
3. Internet users have different skill levels; e.g., literacy, computer literacy and Internet literacy.
4. Not all electronic information and communication systems are beneficial or necessary in all situations.
5. Resources will be required for the management, creation and maintenance of systems.
6. Internet-based systems must be part of the general information and communication strategy of the organization.

The report provides a short overview of some of the main current collaborative Internet technologies. For review of the use of Internet technologies at IDRC and by IDRC project recipients, see: "IDRC Connectivity and current Unganisha activities" (http://www.idrc.ca/unganisha/document/connect/).

IDRC
See: "Use of mailing lists and other discussion tools" (http://www.idrc.ca/unganisha/document/connect/#listserv), In: IDRC Connectivity and current Unganisha activities

3. Internet tools for Collaboration

The software products that are used to facilitate collaboration are often called groupware, teamware, or virtual office products. They can include systems for messaging (email and mailing lists), real-time discussion (point-to-point and point-to-multi-point), audio conferencing, video conferencing, document/application sharing, scheduling and calendars (public and private schedules; links to documents), voting, personal profiles, bulletin boards, white boards, links to external information sources and cookie authentication (remembers a user login and password). Some of the systems must be installed on the organization's server. Others are hosted by the vendor who then charges a maintenance fee. Not all systems are compatible.

Examples of Chat software:

- Mirabilis' ICQ (http://www.icq.com/)
- Activerse's DING! (http://www.activerse.com/ding/)
- CU-SeeMe (http://www.cu-seeme.com/)
- AOL's Instant Messenger (http://www.aol.com/aim/)
- Acuity's ichat Pager (http://www.ichat.com/)
- Tribal Voice's PowWow (http://www.powwow.com/)
- Undernet's Internet Relay Chat (IRC) (http://www.doco-com.undernet.org/)
- Firefly's Passport (http://www.firefly.net/)
- Onlive's LiveList (http://www.onlive.com/)
- Jamsoft's NetPopUp (http://www.vtoy.fi/~malo/netpopup.html)

Examples of collaboration software:

- O'Reilly's WebBoard (http://www.webboard.com/)
- Lundeen's Web Crossing (http://www.webcrossing.com/)
- eShare Expressions' Interaction Suite (http://www.eshare.com/products/index.html)
- HotOffice Virtual Office Service (http://www.hotoffice.com/)
- VocalTec's Internet Phone (http://www.vocaltec.com/)
- Instinctive Technology's eRoom (http://www.instinctive.com/)
- Thuridion's CREW (http://www.Thuridion.com/products/crewhome.htm)
- Changepoint International's involv (http://www.involv.net/)
- Lotus' Instant!TEAMROOM (http://www.lotus.com/products/dominoinstant.nsf)
- TeamWave's Workplace (http://www.teamwave.com/)
- PictureTalk's Communicator (http://www.picturetalk.com/)
- Netscape's Virtual Office by Concentric (http://www.chostn.com/) and Conference (http://www.netscape.com/comprod/products/communicator/conference.html)
- Netopia's Virtual Office (http://www.netopia.com/software/nvo/)

- security; e.g., password protect individual documents

Most current search engines search the full text of documents. However, the results are usually numerous and not always relevant. To improve the relevancy of the search results, metadata (extra information about the document) can be added to the document. Search engines exist and are being developed that would allow users to search the metadata.

Examples of metadata are Author, Title, Date, Language. Examples of metadata systems or systems that improve the organization of the documents are:

- Extensible Markup Language (XML) (http://www.w3.org/TR/REC-xml)
- Dublin Core (http://purl.oclc.org/metadata/dublin_core/)
- Government Information Locator Service (GILS) (http://gils.gc.ca/)

IDRC
See:

- "Guidelines for posting program-approved documents on the IDRC web site" (http://www.idrc.ca/assist/fulltext.html)
- "Management of large documents" (http://www.idrc.ca/unganisha/document/connect/#documents), In: IDRC Connectivity and current Unganisha activities
- Digital Library (http://www.idrc.ca/library/document/index_e.html)
- Focus Collection (http://www.idrc.ca/books/focus.html)
- Nayudamma Information Bank (http://www.idrc.ca/nayudamma/)
- Reports: Science from the developing world (http://www.idrc.ca/reports/index.cfm)

6. Identifying and digitizing existing information resources (Digitization)

The digitization process includes project management, staff training, periodic maintenance, and the selection of: documents, storage media (e.g., Internet server, CD-ROM), scanning system (e.g., image file or optical character recognition (OCR)), text formats (e.g., HTML, WordPerfect or portable document formats (PDF)), document management systems, graphics (e.g., gif or jpeg; size and placement of images), and search engines (e.g., addition of metadata). Digitization can be an expensive and labour intensive exercise, but if done well, it can broaden the distribution of documents and make them more easily accessible.

IDRC
See: Testing the Waters: Project Reports (http://www.idrc.ca/library/water/sci.html), produced by the IDRC Library.

- IDRC's MINISIS, for databases (http://minisis.idrc.ca/minisis/)

IDRC
See:
- "Management systems for project information and lessons learned" (http://www.idrc.ca/unganisha/document/connect/#databases)
- "Bibliographic databases and other databases (non-project)" (http://www.idrc.ca/unganisha/document/connect/#bibdatabases), In: IDRC Connectivity and current Unganisha activities.

9. Multimedia

Most multimedia applications are not recommended for general use as the files sizes are usually large and they require specialized software. If the audience has high end computers and high bandwidth, multimedia can be considered.

Examples:
- RealNetworks (http://www.RealAudio.com/): software for producing and accessing RealAudio and RealVideo files and streaming media
- Macromedia (http://www.macromedia.com/): software for multimedia graphic design, animations and interactive applications; e.g., Shockwave
- Apple's QuickTime (http://www.apple.com/quicktime/)
- Virtual Reality Modelling Language (VRML), for three-dimensional animations with sound

IDRC
See: "Multimedia"
(http://www.idrc.ca/unganisha/document/connect/#multimedia), In: IDRC

Examples of systems that search across several broad search engines:

- ProFusion (http://profusion.ittc.ukans.edu/)
- Metasearch (http://www.metasearch.com/)
- Ask Jeeves! (http://www.askjeeves.com/)
- Cyber411 (http://www.cyber411.com/)
- Dogpile (http://www.dogpile.com/)
- Highway 61 (http://www.highway61.com/)
- Mamma (http://www.mamma.com/)
- Copernic (http://www.copernic.com/) (software must be downloaded and installed)

b. Narrow search engines or subject lists

Examples:

- IDRC's To the World (http://www.idrc.ca/library/world/)
- Forest Partnership's ForestWorld (http://www.forestworld.com/)
- Social Science Information Gateway (http://sosig.ac.uk/)

IDRC
See: "A Researcher's Guide to the Internet: Internet search tool savvy" (http://intra1.idrc.ca/rims/guide/savvy_e.html), produced by the IDRC

3. Searching the journal literature Several journal databases are available for searching on the web.

Examples:

- Uncover (http://uncweb.carl.org) database of over 7 million journal articles
- US National Library of Medicine's Medline (http://www4.ncbi.nlm.nih.gov/PubMed/) database of medical articles including prepublications
- US Department of Education's ERIC database of education articles and reports (http://www.ericae.net/search.htm)

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Commercial database searches can be requested from the Library. Contact

4. Receiving information generated by push techologies or intelligent pull technologies

Use push technologies to be notified of changes that are made on specified sites or of updates. The notification can be by email or on a personalized web page.